

PUBLIC HEALTH DEPARTMENT,
THE GUILDHALL, CAMBRIDGE.

April 4th, 1938.

*To the Chairman and Members of the Local Education
Authority.*

MR. CHAIRMAN, LADIES AND GENTLEMEN,

I have the honour to present for your consideration the 30th Annual Report upon the medical inspection of the elementary school children in Cambridge.

The year under review has been one of many changes. The most important of these was the retirement of Dr. A. J. Laird after nearly thirty years' able and untiring work, and consequent upon this the necessary changes in the staff.

Points of interest in the Report to which attention may be drawn are :—

1. The opening of Coleridge Senior School, and various improvements and alterations to several other schools.

2. The routine examination of the 3 year old school children by Dr. Patterson, Assistant Medical Officer for Maternity and Child Welfare.

3. Dr. Read's report on Nutrition, and the summary of an experiment carried out by Dr. L. J. Harris, of the Dunn Nutritional Laboratory, at the Municipal Health Centre and at St. George's and St. Philip's Schools.

4. The continued low incidence of Diphtheria ; this can in no way be attributed to immunisation. The percentage of children protected is as yet too small to influence this in any way.

5. Dr. Read's investigation of children immunised in 1930.

6. The great increase in the number of children receiving milk in school, and the success of the holiday distribution from four Centres.

It should be recorded that the milk in school scheme could not succeed without the continued co-operation and generous support of the school teachers, to whom sincere thanks must be offered.

I should also like to express my indebtedness for their help in the preparation of this Report, to Dr. Read, Mr. Lambert and Miss Wallis.

I am,

Your obedient Servant,

ARTHUR J. SMYTH,
School Medical Officer.

MEMBERS OF THE HYGIENE SUB-COMMITTEE OF THE EDUCATION COMMITTEE.

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Report of the School Medical Officer

FOR THE YEAR 1937.

Population of the Borough (1936)	76,760
Area of the Borough... ..	10,057 acres
Number of Elementary Schools	24
Number of Departments	37
Open Air School	1

	1929	1930	1931	1932	1933	1934	1935	1936	1937
Average number of children on registers...	6823	6805	6858	7141	7251	7273	7276	7134	7202
Average number of children in attendance	6065	6170	6256	6446	6566	6581	6595	6419	6300

Staff.—

School Medical Officer	Arthur J. SMYTH, M.A., M.B., B.Ch., D.P.H.
Assistant School Medical Officer	Robert A. READ, M.B., Ch.B., D.P.H.
Public Dental Officer	W. Baird GRANDISON, L.D.S., R.C.S.
Assistant Public Dental Officers	C. HARRIS, L.D.S. Miss PAGE, L.D.S.
Bacteriologist	W. H. HARVEY, M.D. (Part time)
School Nurses	Miss F. A. NICHOLLS Miss M. M. W. STEVENS Miss T. GIBBONS
Dental Attendants	Miss D. MALLETT Miss E. IMPEY Miss WENHAM
Clerk	Miss G. A. M. WALLIS

together with the part-time services of the Chief Clerk in the Public Health Department.

School Premises.—Coleridge Senior School, with accommodation for 360 boys and 360 girls was opened on September 6th, 1937.

Morley Memorial, Romsey Mixed, St. Philip's Boys' and Girls', and Cherry Hinton Mixed Schools became Junior Schools from September 6th, 1937, and the senior children were transferred to the Coleridge Senior School.

Extensions to the Shirley Infants' School providing an additional Infants' classroom and a Nursery were opened in April, 1937.

Extensions and alterations to Milton Road Infants' School by which an Assembly Hall and two Nurseries were provided, and a small playing field for the Infants, was completed in November, 1937.

Three fully equipped gymnasia at the Central, Chesterton Senior and Coleridge Senior Schools, with separate changing rooms and showers for boys and girls, were completed during the year.

Expenditure.—The expenditure for the year ended March 31st, 1937, was :—

	£	s.	d.
Medical inspection and treatment ...	2769	16	5
Dental inspection and treatment ...	2463	1	3
Open Air School	4497	6	0

The annual cost per child on the school registers for medical and dental inspection and treatment was 16s. 7d. gross. The cost in terms of a penny rate was 1.87d.

GENERAL REVIEW OF THE WORK OF THE SCHOOL MEDICAL SERVICES IN CAMBRIDGE.

Groups of Children Inspected.—In addition to the examination of "Entrants," "Intermediates," and "Leavers" the inspection of "Three-year-olds" was started in 1937. The latter was carried out by Dr. Patterson, Assistant Medical Officer for Maternity and Child Welfare.

The numbers examined belonging to the four routine groups are shown below.

Routine Cases :	Boys		Girls.		Total.
3 Year Olds ...	33	...	41	...	74
Entrants ...	443	...	417	...	860
Intermediates ...	360	...	333	...	693
Leavers ...	451	...	381	...	832
	<hr/>		<hr/>		<hr/>
	1287		1172		2459
	<hr/>		<hr/>		<hr/>

Special Inspections, 4311 ; re-inspections, 1607.

The number at routine inspections represents 39 per cent. of the number of children in average attendance.

The fluctuations in the routine groups from 1930 are shown below :—

	1930	1931	1932	1933	1934	1935	1936	1937
3 Year Olds ...	—	—	—	—	—	—	—	74
Entrants ...	759	602	691	703	676	790	723	860
Intermediates ...	741	733	706	699	661	651	722	693
Leavers ...	470	490	835	788	746	723	824	832
Totals ...	1970	1825	2232	2190	2083	2164	2269	2459

The following Table shows the number of routine inspections carried out at the various schools :—

	3 Year Olds.		Entrants.		Intermediates		Leavers.	
	Boys.	Girls.	Boys.	Girls.	Boys.	Girls.	Boys.	Girls.
Brunswick Council	2	1	59	26	56	50	—	—
Central ...	—	—	—	—	—	—	76	88
Chesterton Senior	—	—	—	—	—	—	143	103
Coleridge Senior...	—	—	—	—	—	—	78	59
Milton Road ...	—	—	52	45	65	59	—	—
Morley Memorial	—	—	28	33	31	32	—	—
Newnham Croft	—	—	8	9	8	3	—	1
New Street ...	3	1	13	15	—	1	—	—
Park Street ...	—	—	13	11	10	10	—	—
Richmond Road...	—	—	16	14	5	6	—	—
Romsey Council...	—	—	—	—	15	12	34	25
St. Andrew's ...	—	—	—	—	34	27	—	—
St. Barnabas ...	2	5	20	20	13	12	—	—
St. George's ...	—	—	—	—	—	—	57	56
St. Giles' ...	—	—	4	13	—	—	—	—
St. Luke's ...	1	3	17	18	33	28	—	—
St. Matthew's ...	4	8	10	13	8	10	—	—
St. Paul's ...	—	—	11	20	11	10	—	—
St. Philip's ...	4	6	55	34	28	36	45	29
Sedley ...	10	12	43	46	23	13	—	—
Shirley ...	7	5	75	79	—	—	—	—
St. Andrew's R.C.	—	—	6	4	8	5	10	10
Cherry Hinton ...	—	—	7	10	6	13	8	10
Trumpington ...	—	—	6	7	6	6	—	—
	33	41	443	417	360	333	451	381
	74		860		603		832	

Co-operation of Parents.—The percentage of parents present at the routine inspections was 83, being 5 per cent higher than the previous year, and varied from 39 per cent. to 98 per cent.

REVIEW OF THE FACTS DISCLOSED BY INSPECTION.

The defects noted at both "routine" and "special" inspections will be found in Table IIA, page 21.

The total number of "defects" found at "routine" and "special" inspections to require treatment was 1,933, 208 more than in the previous year, and the number requiring to be kept under observation was 1,449, 180 more than in 1936.

The number of "individual children" found at routine inspection to require treatment shows a decrease from 293 in 1936, to 257 in 1937, and was 10.5 per cent. of the children examined in the four routine groups. This figure is exclusive of uncleanness and dental disease, but includes children found to require treatment on account of their defective nutritional condition.

Among the "3 Year Olds" the percentage requiring treatment was 5.4, "entrants" 6.9, and among the "intermediates" and "leavers," 11.2 and 13.8 per cent.

The total number of children with no defects was 1,042, or 42.4 per cent. of the number examined at routine medical inspection.

Before making any comparison of the percentage of defects in the four age groups, it should be borne in mind that the vision of "3 Year Olds" and "entrants" is not tested.

In spite of the fact that many children are slightly below normal standards of nutrition, the evidence of average heights and weights points to a continued improvement in nutrition which has been steadily maintained year after year. This is a hopeful sign, even though it must be admitted that there is still room for improvement.

Boys.

Age in Years.	No. Examined in 1937.	Average Height in Inches.					Average Weight in Pounds.				
		1912	1934	1935	1936	1937	1912	1934	1935	1936	1937
5	258	40.5	42.55	43.10	43.20	43.18	38.2	41.37	41.57	42.01	42.34
8	361	46.4	48.81	49.79	49.85	49.45	47.6	57.01	56.95	56.59	57.48
12	349	54.9	56.31	56.51	57.18	57.27	72.9	81.84	80.60	81.18	81.56

GIRLS.

Age in Years.	No. Examined in 1937.	Average Height in Inches.					Average Weight in Pounds.				
		1912	1934	1935	1936	1937	1912	1934	1935	1936	1937
5	232	40.5	41.89	42.89	43.07	43.14	37.6	39.53	41.01	40.81	41.79
8	338	46.0	49.24	49.06	49.52	48.96	49.7	54.93	54.69	55.39	55.02
12	352	55.3	57.37	57.76	58.19	58.21	71.3	83.97	84.79	85.75	86.02

Nutrition.—This is a difficult question to discuss, as there are as yet no fixed standards representing the four groups A, B, C, D, under which Nutrition is classified by the Board of Education. The standards are therefore dependent upon each Medical Officer's judgment. Three Medical Officers have been responsible this year for the classification of the children into these four groups, and the figures are therefore bound to differ from those found by any one officer carrying out such work.

The classification of the 2,459 children examined was as follows (1936 figures in brackets) :—

A, 16.4 per cent. (7.2 per cent.) ; B, 71.1 per cent. (87.7 per cent.) ; C, 12.2 per cent. (5.1 per cent.) ; D, 0.3 per cent. (0.0. per cent.).

It will be noted that in 1937 Group B (normal) has been reduced, with the result that there is a corresponding increase in Groups A and C. This increase is caused by the adjustment of the borderline between the various groups. Thus the apparent increase in Group C is offset by an increase in Group A.

Group C includes all those who are slightly subnormal, and I feel personally that all those with whom one is not entirely satisfied should come under this group. It will naturally include a number who have had recent illnesses, who may be expected to improve before being seen again, and also those who have had serious past illnesses. Others are small and undersized from hereditary influences, but in the bulk of cases it is difficult to point to any organic disease as the cause of the malnutrition.

It can therefore be seen that even apart from these children, there is a large number of children who do not quite attain a normal condition of nutrition. One feels there is some element lacking in the diet which is preventing them attaining this standard. Each child classed as C or D was investigated thoroughly to find a cause, and if possible a remedy, and one felt that most of them would improve with regular milk at school. For some, two portions of milk were recommended, and for others Cod Liver Oil and Malt was ordered, in addition. It must be remembered that malnutrition is not necessarily a sign of poverty and it has been said that malnutrition is as common among the rich as the poor. I feel this is an exaggeration, as poverty is bound to tip the balance in favour of malnutrition.

Group D.—Only one child came from a poor family, and arrangements were made for extra nourishment to be supplied. Another suffered from asthma and ichthyosis, and was recommended to the Open Air School. Two had bad family histories, tuberculosis in one case and asthma in another. Another child had had previous threadworms, which probably accounted for the condition. No definite cause, physical or economic, could be assigned to the other three cases, but advice was given to the parents, and suitable cases were advised to go to the Open Air School.

The Open Air School can be of great assistance in such cases, as it has been found that many who are classed C or D before admission become Class B before leaving the school.

It is exceedingly common to find that the parents state that their children will not eat meat, fat or vegetables, so that there must be a deficiency of Vitamins in the diet.

At the medical inspections emphasis is laid on the importance of persuading the children to take proper food at home, but might it not be better to increase the supply of vitamins and protective foods given in school? A simple beginning would be to supply an apple or an orange a day to those who need it. Vitamins A and D are supplied in the Cod Liver Oil and Malt, so that the fruit would supply the extra Vitamin C necessary.

There is great difficulty in assessing vitamin deficiency rapidly at a routine medical inspection. Photometric methods have been used in testing for Vitamin A deficiency by some workers, but this needs special apparatus. Tests carried out by Harris (*Lancet*, October, 1937) indicate that slight Vitamin A deficiency is much more common than previously supposed, and that many more children should be classed in Group C than at present.

" Surveys for Vitamin A deficiency by means of the dark-adaptation test (after Jeans and Zentmire) have shown that among 200 elementary school-children examined, in the east of London or in Cambridge, from 22 to 36 per cent. were in the category described as ' definitely subnormal,' whereas at a public school examined at the same time none of the boys were ' definitely subnormal.' Among these elementary school-children the numbers found ' normal ' varied from 40 to 45 per cent., as compared with 90 per cent. for the public school boys, and those ' slightly below normal ' from 19 to 38 per cent. as compared with 10 per cent. for the public school boys.

" Control tests which have been carried out confirm the accuracy of the method of test. Thus at one school those children who were found to be subnormal at the first test nearly always—viz., in 39 out of 40 cases examined—returned to normal (30 cases), or showed some improvement (9 cases), after treatment with Vitamin A for about four weeks, while those not so treated remained virtually unchanged.

" Vitamin A deficiency as measured by the dark-adaptation test was found to be more prevalent among younger children than among adolescents, and more prevalent among the latter than among adults, in the classes of society studied. There was no important sex difference, although girls at 13 or 14 years had somewhat better average reserves than boys of the same age."

A further 100 children have been examined at an elementary school in Cambridge by the method previously described (Maitra and Harris, *Lancet*, 2, 1009, 1937). Of these children, 43 were found normal, 34 were " border-line," and 23 were " definitely subnormal."

Lack of sleep must be a factor, especially where houses are small. As many of moderate means can afford a radio, this is quite possibly one reason for late hours.

Comparisons of nutritional classification in other areas for the same year cannot be made, as figures are not available, but comparisons with a similar type of population, say, Kent County Council in 1936, is interesting. Their figures were 89 per cent. A and B, 11.1 per cent. C and D, very similar to Cambridge figures.

Cleanliness.—Although there is an improvement each year, there are still too many children found to be verminous or nit infected. Only a comparatively few families are chronic offenders, and it is these few who are responsible for the persistence and occasional spread of uncleanness in the schools.

The constant vigilance of the School Nurses, however, keeps the verminous infections under control, and prevents them spreading to children who are well cared for by their parents.

The total number of individual children found unclean at school by the School Nurses during the visits they have made specially for this purpose during 1937, was 619, as compared with 663 in 1936.

The proportion found with pediculi in their heads was 1.5 per cent. In 1936 the proportion was 2.1 per cent.

No proceedings were taken under Section 122 of the Children Act, 1908, but proceedings in Court were taken under the School Attendance Bye-laws in 11 cases, and fines of 2/6 were inflicted in 3 of these, 4 were convicted but no penalty imposed, and 4 were dismissed with a caution.

Ringworm.—Ten new cases occurred, 7 of the body and 3 of the scalp. Seven were treated at Addenbrooke's Hospital. There were no cases at the end of the year.

The new cases discovered each year from 1925 were as follows :—

1925	'26	'27	'28	'29	'30	'31	'32	'33	'34	'35	'36	'37
15	11	14	16	2	9	12	5	3	5	2	3	10

Tonsils and Adenoids.—492 children (20.7 per cent.) had considerably enlarged tonsils. 12 also suffered from adenoids. Of these 88 required treatment as compared with 86 in 1936.

Orthopaedic.—By far the greatest number of children with orthopaedic defects were suffering from flat feet.

A large percentage of these was treated by Dr. Roderick at Addenbrooke's Hospital. This treatment is most essential, since quite a proportion of the children will be going to posts in which they may have to stand all day, in shops or factories, conditions in which any degree of flat foot is bound to become worse and cause all its later effects, such as painful tired feet, corns, etc.

Improved physical exercises at school should have an effect in reducing the numbers of children with flat feet in the future.

There were few serious cases of spinal deformity, though round shoulders were fairly common.

Cripples and Deformities.—The defects found include :—flat foot, 91 ;* after effects of rickets, 2 ; spinal curvature, 4 ; round shoulders, 34 ; bad posture, 11 ; knock knees, 46 ; bowed legs, 3 ; flat chest, 4 ; over-riding toes, 5 ; depressed sternum, 13 ; deformed toes, 10 ; after effects of infantile paralysis, 1, and other conditions, 35.

Defective Vision.—The number of children found at routine inspection to have defective vision (6/9 or worse) was 98. Of these 66 required treatment, 7 were recorded for observation and the remaining 25 had already received treatment.

In addition to the above 98 children, 53 " specials " were examined, 27 during routine inspection and 26 at the Clinic. All except 3 required treatment.

Squint.—Thirty-one children were noted with squint in the year. 7 of these required treatment, 8 were very slight, 16 being kept under observation.

External Eye Disease.—The conditions found were Blepharitis 12, Squint 31, and 11 other conditions, making a total of 54. The total number of similar conditions in 1936 was 41.

Ear Disease and Deafness.—The number of children found with defective hearing was 63, or 4.1 per cent. of those inspected. Twelve had a purulent ear discharge (0.7 per cent.). The percentages for several years are given in comparison.

	1929	1930	1931	1932	1933	1934	1935	1936	1937
Otorrhoea	0.7	0.6	0.4	0.1	0.6	0.5	0.6	0.8	0.7
Deafness	3.0	1.8	1.9	0.8	2.1	1.7	4.3	4.5	4.1

The hearing of all children of 8 years and over, examined at routine medical inspection, has been tested by the Audiometer. The test was repeated in every case in which the hearing was only slightly below normal, or if the child did not seem to grasp what was required of it.

In all, 1,554 children were tested in the following age groups :—

Age ...	...	8.	12.	13.	" Specials."
Number	...	612	725	40	177

Among this number 70 were found to have more than 9 units loss of hearing in one or both ears.

Age.	Defective hearing in		Both
	right ear.	left ear.	ears.
8	11	13	20
12	5	4	6
13	—	1	—
" Specials "	6	4	—

These 70 deaf children were examined by the Medical Officer and given advice, or referred for treatment as the case may be.

In 1936 the figures for defective hearing discovered by the Audiometer inspection showed a total of 77.

The audiometer is most valuable for detecting slight and early cases of ear trouble, as it is difficult to discover slight defects during a medical inspection in a schoolroom which may often be noisy.

Other Defects.—These include 75 children with irregular action of the heart, 10 stammerers, 59 with indication of nervous instability, and 74 suffering from anaemia.

Vaccination.—The proportion of children found with vaccination marks in 1937 was 22.8 per cent., this being 6 per cent. less than the previous year.

INSPECTION CLINIC.

The Clinic is open every weekday, including Saturdays, from 9.30 a.m. until 1 p.m. The Assistant Medical Officer, three School Nurses, and a Clerk are in attendance.

The total number of children inspected at the Clinic during 1937 was 8,561, 466 more than in 1936.

The attendances in 1937 numbered 13,552, an increase of 1,136 as compared with 1936.

The average daily attendance during 1937 was 54.

Special Examinations for Physical or Mental Defect.—A number of children are examined at the Clinic who come under special groups, either physical or mental. They include the children who are receiving milk in the schools on medical grounds; those whose condition suggests the need for a period at the Open Air School, and those whose mental capacity is in question.

The children specially examined for mental defect in 1937 numbered 31 (19 boys and 12 girls). The number recommended for the Special School was 9 (6 boys and 3 girls).

The number examined for physical defects was 98 (55 boys and 43 girls). Of these 96 (53 boys and 43 girls) were recommended for the Open Air School.

INFECTIOUS DISEASES AMONG ELEMENTARY SCHOOL CHILDREN.

The following table shows the incidence of Infectious Disease among school children :—

	1929	1930	1931	1932	1933	1934	1935	1936	1937
Scarlet Fever ...	56	106	52	62	112	126	112	72	38
Diphtheria ...	162	49	23	12	6	2	3	1	2
Influenza ...	1	—	—	—	82	—	—	—	—
Measles ...	316	453	110	634	209	83	1054	138	268
German Measles	4	5	1	2	4	11	60	926	5
Whooping Cough	126	242	82	215	202	180	38	335	199
Chicken Pox ...	195	244	213	250	196	357	224	215	209
Mumps ...	20	9	218	270	15	15	11	1098	260
Ringworm ...	2	6	—	5	3	4	1	3	3
Scabies ...	1	—	—	1	3	—	—	1	2
Skin Diseases ...	7	13	1	12	12	19	30	32	19
" Pink Eye " ...	—	—	—	—	—	347	7	7	1
Others ...	102	74	25	71	84	66	80	43	44
Totals ...	992	1201	725	1534	928	1210	1620	2871	1050

Diphtheria Immunisation.—Children are immunised and Schick tested on Wednesday mornings at the School Clinic. As a rule 25 to 30 children are inoculated and the same number Schick tested at each session.

	1934.	1935.	1936.	1937.
Number inoculated ...	319	827	719	685
Number " Schicked "	288	578	675	803

Forty-two of those Schick tested formed part of a special investigation which will be described later. 614 of the remaining 761 were tested for the first time, and of these 508 proved negative and 106 were positive. 96 of the positives received another inoculation. 140 were tested for a second time ; 134 of these proved negative and 6 pseudo and negative.

Four were tested for the third time, 2 being negative and 2 pseudo and negative. 3 were tested for the fourth time, 1 being negative and 2 pseudo and negative.

A special investigation was carried out at the end of the year to determine the duration of protection after inoculation.

Forty-two children who had been inoculated in 1930 were " Schick " tested, and of these 36 were found to be negative (*i.e.*, still protected). 3 were definitely positive and 2 were very slightly positive. 1 left the town before being read. For statistical proof, a larger number would have to be tested, but from the figures available it will be noted that only about 7 per cent. had definitely lapsed to an unprotected state after seven years.

All the children who were immunised in 1930 received three injections of Toxin Antitoxin Mixture, and for comparison an investigation will be made in 1938 of those children who were immunised by the " one shot method " using Alum Precipitated Toxoid.

The numbers inoculated in 1937 show a slight fall compared with the previous year, and this is only to be expected when the town has remained free from Diphtheria epidemics, causing parents to forget the dangers of this disease. As, however, inoculation takes a few months to exert its effect in protecting the individuals, parents are always advised not to wait until there is the scare of an epidemic, but to get their children inoculated as early as possible.

Of the 685 inoculated, 436 were over 5 years of age and 249 under 5.

School Closure.—Seven departments had an attendance below 60 per cent. during the year on account of illness.

TREATMENT OF DEFECTS.

The total number of children treated for minor ailments was 1,229, being 88 more than in the previous year. In addition treatment was given to 133 for defective vision, 54 for diseases of the throat and nose, and 4,568 for dental disease, making a total of 5,984 cases treated in 1937, as compared with 5,835 in 1936.

1. *Hospital Treatment.*—Four hundred and fifty-eight school children received treatment at Addenbrooke's Hospital, the conditions requiring treatment being :—Disease of the ears, 60 ; eyes, 11 ; ringworm, 7 ; tonsils and adenoids, 90 ; skin disease, 2 ; minor injuries, 34 ; flat feet, 53 ; over-riding toes, 3 ; knock-knees, 20 ; various other conditions, 153 ; speech defects, 25 ; making a total of 458 defects in 445 children.

In addition, a number of children have received Light Treatment at the Hospital.

2. *Treatment at the School Clinic.*—The number of children treated at the school clinic was 668, a decrease of 40 compared with the preceding year; the number of attendances for treatment shows an increase from 5,029 in 1936 to 5,530 in 1937.

One hundred and thirty-three refractions were carried out during 1937. Lenses were prescribed in 24 cases of hypermetropic astigmatism, 12 cases of mixed conditions, 20 cases of hypermetropia, 28 cases of myopia, and 28 cases of myopic astigmatism.

In 21 cases spectacles were not prescribed, and these children will be kept under observation.

During the year 74 children received spectacles under the Authority's scheme.

WORK OF THE SCHOOL NURSES.

The total number of visits made to schools in the year was 617, of which 142 were in connection with the routine medical inspections, 217 for the cleanliness survey, and the remainder for various other purposes.

The "home" visits numbered 1,716 in the year; 654 for the purpose of following-up cases of defects found at routine inspections, 751 in connection with infectious disease, and 291 visits of enquiry as to the cause of absence of children notified as ill by Head Teachers and School Attendance Officers.

The figures in 1936 were :—Total home visits 3,461, following-up 900, infectious diseases 2,323, absentees 206.

OPEN AIR SCHOOL.

The Open Air School continues to be popular, and there is often a waiting list of children for admission.

Any children who would be likely to benefit from extra rest, fresh air and good food are admitted to this school. The school has been found to give good results with children suffering from rheumatism, heart trouble and bronchitis.

Children who are debilitated from no specific cause usually respond exceptionally well, and are often able to be transferred to an ordinary school in a comparatively short time.

One of the after effects of rheumatism is valvular heart disease, in the treatment of which rest is an important essential. For this and for the graduated exercises which can be given as the patient improves, the Open Air School is ideal.

The Open Air School is invaluable also for children with non-infectious tubercular conditions—such as enlargement of glands in neck, chest and abdomen. Infectious cases, of course, are not admitted.

A valuable adjunct to the Open Air School *régimé* is the Artificial Sunlight Lamp. The present lamp can only deal with a few children at a time, but if a larger lamp were available it would be possible to extend the range of this valuable treatment.

Delicate and Physically Defective Children.—The number on the register of the Open Air School in Milton Road at the beginning of the year was 118. During the year 78 children left and 80 were admitted, the figures for 1936 being 79 left and 77 admitted. Of the 78 children who left the school during the year, 68 returned to their ordinary schools, 2 left the town, and 2 had reached school leaving age. Three were transferred to the Special School, and three left at the wish of the parents.

The following types of case have attended during the year:—

Anaemia...	...	...	...	...	21
Asthma ...	...	...	...	...	1
Bronchitis	...	...	...	...	9
Rheumatism and Rheumatic Heart...					5
Enlarged Glands	...	...	...		9
Contacts of Tuberculosis		...	...		5
Debility from various causes			...		39
Cripples ...	...	...	...	...	4
Nervous Children	...	...	...		12
Various other conditions		...	...		15

LIGHT TREATMENT AT THE OPEN AIR SCHOOL.

This treatment is given three mornings a week, the period of treatment for each case varying from six weeks to four months.

The number treated during the year was 48—26 boys and 22 girls.

The conditions treated included glandular enlargements, 9; debility and anaemia, 23; bronchial conditions and colds, 6; rheumatism, 1; skin conditions, 3; contacts of tuberculosis, 2; blepharitis 3; conjunctivitis 1; All the children treated made good progress, and by the end of the year 11 had returned to the ordinary schools.

SPECIAL SCHOOL.

This was formerly known as the Observation Class, but was certified as a special school under Part V of the Education Act, 1921, from September 1st, 1932.

The number in the school at the beginning of 1937 was 35. Eight left and 11 were admitted, leaving 38 children in attendance at the end of 1937. Of the 8 who left, 2 were admitted to an Institution, and 6

were notified to the Local Control Authority, 2 as imbeciles and 4 for statutory supervision.

In addition 1 child, not attending any school, was notified to the Local Control Authority as an imbecile.

INSTITUTIONAL CARE.

The number of defective children maintained in Institutions by the Education Committee during 1937 was : blind 1, deaf and dumb 4, mentally defective 3, epileptic 1, deaf and partially blind 1, orthopaedic 2.

SUPERVISION BY THE TUBERCULOSIS OFFICER.

The number of children reported upon by the Tuberculosis Officer during the year was 24. Five were excluded from attending school and 14 were recommended for the Open Air School.

TUBERCULOSIS IN SCHOOL CHILDREN.

The number of children of school age notified to be suffering from tuberculosis each year from 1926 is shown in the following statement :—

NOTIFICATIONS OF NEW CASES RECEIVED AT AGES 5-14 YEARS DURING THE YEARS 1926 TO 1937.

	Pulmonary Tuberculosis.		Non-Pulmonary Tuberculosis.	
	Boys.	Girls.	Boys.	Girls.
1926 ...	10	6	6	8
1927 ...	25	13	10	6
1928 ...	9	9	3	1
1929 ...	6	6	3	6
1930 ...	3	1	2	4
1931 ...	2	2	1	2
1932 ...	—	1	2	2
1933 ...	—	—	4	3
1934 ...	—	—	2	—
1935 ...	—	—	4	5
1936 ...	1	—	1	2
1937 ...	1	—	2	6

VOLUNTARY AGENCIES.

Every year a number of delicate children are sent for a change of air to the seaside by members of the Invalid Children's Aid and Preventive Aid Societies. 51 were sent away during 1937. All had been examined and passed as suitable by the Assistant Medical Officer.

Other voluntary associations which carry on work among school children, and which give most valuable help, include the Care Committee, the Central Aid Society, and the Voluntary Association for Mental Welfare.

The Inspector of the National Society for the Prevention of Cruelty to Children gave assistance in several cases during the year.

An Occupation Centre for low grade mentally defectives established and managed by the Cambridge Voluntary Association for Mental Welfare has been in existence since 1929. The premises used are those of the old "Hope Class" in Paradise Street. Their use has been granted free of charge to the Association by the Education Committee.

It is open in the afternoons every week-day except Saturday from 2 to 4.30 p.m. The number attending at present is twenty-seven; of whom only six are boys. The number under 16 years of age is thirteen.

PROVISION OF MILK IN SCHOOL.

The number of children receiving milk in schools has increased from approximately 4,400 in 1936 to approximately 5,200 in 1937.

The milk was distributed during the Easter holidays, the Summer holidays and Christmas holidays from three Centres:—The Municipal Health Centre, Auckland Road, the Romsey Domestic Centre, Coleridge Road, and Milton Road School, and from Shirley Infants' School during Christmas holidays.

The average daily number of children attending was 338 during the Easter holidays, 316 during the Summer holidays, and 464 during the Christmas holidays.

The assessment of ability to pay for the milk is undertaken by the Central Aid Society, but every child recommended gets milk free of cost pending the making of an assessment. The number getting the milk free on medical grounds for any period during the year was 1,032.

COD LIVER OIL.

The number of children having cod liver oil and malt in school during 1937 was 1,628.

TEACHING OF HYGIENE IN SCHOOL.

Health Education.—The school child's education in health is, or should be, a continuation of the training which the Maternity and Child Welfare Committee provide for the infant and toddler stages of life.

In the Infant Schools much attention is paid to the inculcation of habits of cleanliness. Attention is given to cleanliness of the head, face, teeth and clothing, the use of the pocket handkerchief, the practice of mouth breathing, and the proper use of the sanitary conveniences.

These lessons are practised daily in connection with the preparation for the forenoon lunch or milk, the periods allotted to play and rest, while at the same time close touch is kept with parents by means of simple talks given by the teachers and others on such subjects as diet, sleep, clothing, etc.

Among the older children physical education is carried on by means of suitable exercises. These are regarded as an important part of the school curriculum, and abundant facilities exist in Cambridge for all forms of out-door exercises and games.

CHILD GUIDANCE CLINIC, UNDER DR. NOBLE AT ADDENBROOKE'S
HOSPITAL.

This Clinic is doing very essential work, which can hardly be undertaken in any other manner.

Many children who re-act abnormally at home or in school, or who show definite "nervous habits" often complicated by speech defects or enuresis, need a very thorough investigation to elucidate the cause of their erratic behaviour. This investigation can scarcely be carried out thoroughly in a busy School Clinic, and so it is extremely useful to have a Child Guidance Clinic available where specialist advice can be given.

Forty-five children were sent to the Child Guidance Clinic during the year, and of these 25 were referred for speech defects. These children attend special speech training sessions in connection with the Child Guidance Clinic.

The remainder of the conditions included Enuresis (6), Sleep-walking (1), Nervous Tic (1), while the general term "nervy children" may be used for the others who were referred.

Comparatively few speech defects are purely mechanical defects in the muscles used in voice production, as there is usually an underlying psychological cause which can be elucidated by the Psychiatrist.

EMPLOYMENT OF SCHOOL CHILDREN.

The number of children examined and found fit under the Bye-Laws regulating the employment of school children was 66. The number examined last year was 76.

There were 2 applications for a medical certificate for public entertainments.

DEATHS OF ELEMENTARY SCHOOL CHILDREN.

The total number of deaths in Cambridge of children 5—14 years of age during 1937 was 7.

The causes of these deaths were :—Accidents, 2; Scarlet Fever, 1; Broncho-Pneumonia, 1; Tuberculous Meningitis, 1; Congenital Heart Disease, 1; Lymphatic Leukaemia, 1.

TABLE I.—RETURN OF MEDICAL INSPECTIONS.

A. ROUTINE MEDICAL INSPECTIONS.

Number of Inspections in the prescribed Groups.

3 Year Olds	...	...	...	74
Entrants ...	...	...	...	860
Second Age Group	...	...	...	693
Third Age Group	...	...	...	832
Total				2459

Number of other Routine Inspections ... Nil.

B. OTHER INSPECTIONS.

Number of Special Inspections	...	...	4311
Number of Re-Inspections	...	...	1607
Total			5918

C. CHILDREN FOUND TO REQUIRE TREATMENT.

Number of individual children found at Routine Medical Inspection to require treatment (excluding Uncleanliness and Dental Diseases).

Group. (1)	For defective vision (exclud- ing squint). (2)	For all other conditions re- corded in Table IIA. (3)	Total. (4)
3 Year Olds ...	—	4	4
Entrants... ..	5	55	60
Second Age Group ...	17	63	78
Third Age Group ...	44	75	115
Total (Prescribed Groups)	66	197	257

TABLE II.—A. Return of Defects found by Medical Inspection in the year ended December 31st, 1937.

Defect or Disease.					Routine Inspections.		Special Inspections.	
					No. of Defects		No. of Defects	
					Requiring treatment.	Requiring to be kept under observation but not requiring treatment.	Requiring treatment.	Requiring to be kept under observation but not requiring treatment.
Skin	(1) Ringworm :	Scalp	...	...	—	—	3	—
	(2)	Body	...	...	—	—	7	—
	(3) Scabies	...	...	...	—	—	4	—
	(4) Impetigo	...	...	...	1	—	204	—
	(5) Other Diseases (Non-Tuberculous)	...	...	...	12	21	183	2
Total (Heads 1 to 5) ...					13	21	401	2
Eye	(6) Blepharitis	...	...	...	4	7	29	1
	(7) Conjunctivitis	...	...	...	—	1	91	—
	(8) Keratitis	...	...	...	—	—	—	—
	(9) Corneal Opacities	...	...	...	—	—	—	—
	(10) Other Conditions (excluding Defective Vision and Squint)	...	...	...	1	6	48	2
Total (Heads 6 to 10) ...					5	14	168	3
Ear	(11) Defective Vision (excluding Squint)	...	...	...	66	25	53	2
	(12) Squint	...	...	...	7	16	6	—
	(13) Defective Hearing	...	...	...	20	40	19	3
	(14) Otitis Media	...	...	...	1	7	12	—
	(15) Other Ear Diseases	...	...	...	—	6	8	—
Nose and Throat	(16) Chronic Tonsillitis only	...	...	...	36	435	32	17
	(17) Adenoids only	...	...	...	7	5	5	—
	(18) Chronic Tonsillitis and Adenoids	...	...	...	2	2	6	—
	(19) Other Conditions	...	...	...	4	44	16	2
	(20) Enlarged Cervical Glands (Non-Tuberculous)	...	...	...	2	154	18	11

TABLE II.—(continued.)

Defect or Disease.					Routine Inspections.		Special Inspections.	
					No. of Defects		No. of Defects	
					Requiring treatment.	Requiring to be kept under observation but not requiring treatment.	Requiring treatment.	Requiring to be kept under observation but not requiring treatment.
Enlarged Submaxillary Glands					—	108	—	—
(21) Defective Speech					6	4	16	—
Heart and Circulation	Heart Disease :							
	(22) Organic				—	—	—	—
	(23) Functional				2	69	2	1
Lungs	(24) Anaemia				4	53	20	4
	(25) Bronchitis				1	5	9	—
	(26) Other Non-Tuberculous Diseases				2	19	2	1
Tuber- culosis	Pulmonary :—							
	(27) Definite... ..				—	—	—	—
	(28) Suspected				—	—	1	—
	Non-Pulmonary :							
	(29) Glands				—	1	3	—
	(30) Bones and Joints				—	3	—	—
	(31) Skin				—	—	—	—
(32) Other Forms					—	—	—	—
Total (Heads 29 to 32)					—	4	3	—
Ner- vous System	(33) Epilepsy				—	—	—	—
	(34) Chorea				—	—	3	2
	(35) Other Conditions				11	36	9	7
Deformities	(36) Rickets				—	26	—	—
	(37) Spinal Curvature				4	1	—	—
	(38) Other Forms				68	187	17	12
(39) Other Defects and Diseases (excluding Defects of Nutrition, Uncleanliness and Dental Diseases					26	82	820	19
Total number of defects					287	1363	1646	86

B. Classification of the Nutrition of Children Inspected during the Year in the Routine Age Groups.

Age-groups.	Number of Children Inspected.	A (Excellent)		B (Normal)		C (Slightly subnormal)		D (Bad)	
		No.	%	No.	%	No.	%	No.	%
3 Year Olds ...	74	7	9.4	48	65.0	18	24.3	1	1.3
Entrants ...	860	108	12.6	663	77.1	88	10.2	1	0.1
Second Age- group...	693	79	11.4	528	76.2	82	11.8	4	0.6
Third Age-group	832	209	25.2	510	61.3	111	13.3	2	0.2
Other Routine Inspections	—	—	—	—	—	—	—	—	—
Total ...	2459	403	16.4	1749	71.7	299	12.2	8	0.3

TABLE III. Return of all Exceptional Children in the Area.

Blind Children	At Certified Schools for the Blind	—
	At Public Elementary Schools	—
	At other Institutions...	—
	At no School or Institution ...	—
	Total	—
Partially Sighted Children... ..	At Certified Schools for the Blind	1
	At Certified Schools for the Partially Blind	—
	At Public Elementary Schools	—
	At other Institutions...	—
	At no School or Institution ...	—
	Total	1
Deaf Children	At Certified Schools for the Deaf... ..	1
	At Public Elementary Schools	—
	At other Institutions...	—
	At no School or Institution ...	1
	Total	2
Partially Deaf Children	At Certified Schools for the Deaf	2
	At Certified Schools for the Partially Deaf	—
	At Public Elementary Schools	—
	At other Institutions...	—
	At no School or Institution ...	—
	Total	2
Mentally Defective Children Feeble-minded Children...	At Certified Schools for Mentally Defective Children ...	41
	At Public Elementary Schools	1
	At other Institutions...	—
	At no School or Institution ...	1
	Total	43
Epileptic Children Children Suffering from Severe Epilepsy	At Certified Special Schools	1
	At Public Elementary Schools	—
	At other Institutions...	—
	At no School or Institution ...	1
	Total	2
Physically Defective Children A. Tuberculous Children I.—Children suffering from Pulmonary Tuberculosis ...	At Certified Special Schools	—
	At Public Elementary Schools	—
	At other Institutions...	—
	At no School or Institution ...	—
	Total	—
II.—Children suffering from Non- Pulmonary Tuberculosis	At Certified Special Schools	—
	At Public Elementary Schools	—
	At other Institutions...	—
	At no School or Institution ...	—
	Total	—

TABLE III.—(continued)

B. Delicate Children 	At Certified Special Schools		112
	At Public Elementary Schools		28
	At other Institutions... ...		—
	At no School or Institution ...		1
	Total 		141
C. Crippled Children 	At Certified Special Schools		6
	At Public Elementary Schools		6
	At other Institutions... ...		—
	At no School or Institution ...		—
	Total 		12
D. Children with Heart Disease...	At Certified Special Schools		5
	At Public Elementary Schools		—
	At other Institutions... ...		—
	At no School or Institution ...		—
	Total 		5
Children suffering from Multiple Defects	Blind and Dumb	At no School or Institution...	1
	Deaf and Partially Blind	At Certified Special Schools...	1
		Total 	2

TABLE IV. Return of Defects Treated during the year ended 31st December, 1937.

TREATMENT TABLE.

Group I. Minor Ailments (excluding Uncleanliness, for which see Group VI.)

Disease or Defect.	No. of Defects treated or under treatment during the year.		
	Under the Authority's Scheme.	Otherwise	Total.
Skin—			
Ringworm—Scalp—			
(i.) X-Ray Treatment	3	—	3
(ii.) Other „	—	—	—
Ringworm—Body	4	3	7
Scabies	3	—	3
Impetigo	192	—	192
Other Skin Disease	181	9	190
Minor Eye Defects	143	7	150
(External and other, but excluding cases falling in Group II.)			
Minor Ear Defects	9	15	24
Miscellaneous	557	103	660
(e.g., minor injuries, bruises, sores, chilblains, etc.)			
Total	1092	137	1229

Group II. Defective Vision and Squint (excluding Minor Eye Defects treated as Minor Ailments—Group I.)

Defect or Disease.	No. of Defects dealt with.		
	Under the Authority's Scheme.	Other-wise.	Total.
Errors of Refraction (including squint)	133	—	133
Other Defect or Disease of the Eyes (excluding those recorded in Group I.)	—	—	—
Total ...	133	—	133

Total number of children for whom spectacles were prescribed

(a)	Under the Authority's Scheme	...	...	112
(b)	Otherwise	...	...	—

Total number of children who obtained or received spectacles

(a)	Under the Authority's Scheme	...	...	74
(b)	Otherwise	...	...	—

Group III. Treatment of Defects of Nose and Throat.
Number of Defects.

Received Operative Treatment.			Received other forms of Treatment.	Total number treated.
Under the Authority's Scheme, in Clinic or Hospital.	By Private Practitioner or Hospital, apart from the Authority's Scheme.	Total.		
54	—	54	—	54

Group IV, Orthopaedic and Postural Defects.

	Under the Authority's Scheme.			Otherwise.			Total number treated.
	Residential treatment with education.	Residential treatment without education.	Non-residential treatment at an orthopaedic clinic.	Residential treatment with education	Residential treatment without education.	Non-residential treatment at an orthopaedic clinic.	
Number of children treated	—	—	52	—	—	—	52

Group V. Dental Defects.

(1) Number of Children who were :—

(a) Inspected by the Dentist :

Aged :

Routine Age Groups	3	89	Total	6293
	4	261		
	5	588		
	6	706		
	7	669		
	8	664		
	9	629		
	10	636		
	11	682		
	12	547		
	13	566		
	14	256		

Specials 151

Grand Total ... 6444

(b) Found to require treatment 4774

(c) Actually treated ... 4568

(2) Half-days devoted to :—

Inspection	...	49	Total	1282
Treatment	...	1207		
Administration (including teaching)	...	26		
		

(3) Attendances made by Children for treatment ... 4890

(4) Fillings :—

Permanent Teeth	8611	Total	8889
Temporary Teeth	278		

(5) Extractions :—

Permanent Teeth	400	Total	4255
Temporary Teeth	3855		

(6) Administrations of general anaesthetics for extractions ... 25

(7) Other operations :—

Permanent Teeth	340	Total	5181
Temporary Teeth	4841		

Group VI. Uncleanliness and Verminous Conditions.

(i)	Average number of visits per school made during the year by the School Nurses	...	...	...	6
(ii)	Total number of Examinations of children in the Schools by School Nurses	...	...	...	18,181
(iii)	Number of individual children found unclean	...	...	...	619
(iv)	Number of children cleansed under arrangements made by the Local Education Authority	...	...	...	Nil
(v)	Number of cases in which legal proceedings were taken :				
	(a) Under the Education Act, 1921	...	...	...	Nil
	(b) Under School Attendance Bye-Laws	...	...	...	11

ANNUAL REPORT OF PHYSICAL EDUCATION IN THE BOROUGH
OF CAMBRIDGE, YEAR ENDING 31ST DECEMBER, 1937.

Since the inception of the organisation of Physical Education in the Borough of Cambridge there has been no period of such definite promise and encouragement of future progress as in the past year, which should stand out prominently as a landmark in its local development.

The year marks the completion of school reorganisation and the achievement of a building programme which, it is probably true to say, has provided facilities for physical education on a scale as yet scarcely equalled in this country. It is possible now to look forward to an even course of development of the scheme in most schools without disturbance or undue improvisation through consideration of weather and accommodation. In the last three years there has been a progressive extension of the scheme, as facilities for it have become available, and the teachers have adapted themselves readily in adjusting their methods to the improved conditions. It may be advantageous at this turning point—and the end of this year should undoubtedly mark a turning point—to trace out the lines of development which have characterised the training in Cambridge schools in the last three years.

In the first year or so the playground work was based on the Board of Education's 1933 Syllabus, although it is primarily intended as the syllabus for infant and junior children. Comparatively simple in form and substance, it suited the conditions then existing at most schools. The great majority of the teachers attended training courses and a sound foundation was built up. On experience and knowledge gained in the first year the introduction of a wider scheme for senior children, with specialist teachers, became possible in schools with suitable accommodation, and portable gymnastic equipment was provided. For the past eighteen months or so the schools thus equipped have still used the 1933 Syllabus as the basis of their training, but on a simple scale have progressed into a wider field of gymnastics, more suited to the needs of, and more satisfying for, older children. Coincident with this advance there has been a gradual improvement of the children's own equipment in footwear and clothing for the lessons. The decision of the Education Committee to erect fully equipped gymnasias at the Chesterton Senior, Coleridge Senior and Central Schools provides the opportunity for the institution of more effective training in those schools and, except those at St. Andrew's R.C. School, all senior children will now have access to training in an equipped gymnasium during their last three or four years at school. It cannot be too strongly emphasised, however, that success in the whole progression of training depends no less on the Infant and Junior Schools than on those equipped with a gymnasium, and that success will eventuate only as the work proceeds regularly and methodically at all stages in the child's whole school life.

In this last respect it is pleasing to report that in Cambridge there is evidence of teachers taking more than a passing interest in schools of a different type from their own, and an encouraging feature of Teachers'

Classes has been the attendance of teachers from varied types of schools. In regard to regularity of lessons in schools, there has been little ground for complaint, the daily activity being almost the universal rule. No department can participate in regular and uninterrupted training unless it has suitable indoor accommodation for bad weather, and previously a bad spell produced a definite set-back in progress sometimes. The completion of reorganisation has brought in its train better facilities in this respect, and few schools now lack them. It is satisfactory to record that the availability of facilities for indoor work does not appear to have resulted in any undue reduction of lessons in the open air when these have been possible, and a marked feature of progress in the year has been that as regards suitability of dress. The habit of wearing the minimum of clothing for exercise in good weather is becoming increasingly common and popular among the children. Over a long period the teachers have used their best efforts to improve the footwear and, with necessitous cases now provided for by the Education Committee, most children are suitably equipped. An excellent example in personal equipment is set by more teachers, and this must have a strong influence on their classes. As a consequence the atmosphere of the lessons is generally more suited to that expected in physical training and a better tone is set.

With few exceptions the teachers are keen and are displaying a deeper insight into the methods of class management and a wider knowledge of the purposes of the various forms of training. One of their main requirements now is to speed up their teaching by concise coaching and quicker class arrangements. Lesson programmes are generally sound, but too often, arranged programmes are not accomplished within the specified lesson period. This will be one of the most pressing problems in the equipped gymnasiums, calling for solution by modified gymnastic lessons with a minimum of elaboration and, above all, a speeding up of the processes of changing and showering. For use by teachers in senior boys' schools during the first year, a simple scheme of apparatus exercises and activities has been planned for all classes, and a Teachers' Training Class was held during the last term. The table form and programme suggested should enable both teachers and children to get accustomed by easy stages to the working of apparatus and to the new class arrangements which its use demands. By these means there should be a gradual acceleration in the teaching and more ambitious schemes will become possible.

The training of teachers has also been one of the Organisers' main considerations. During the year ten courses were held, for women on Infant and Junior, Junior, Dancing, Recreative Keep-Fit work and two Games Courses, and for men teachers on Junior work, Senior training with apparatus, Recreative Physical Training and Winter Games. Although these classes were well attended by teachers as a whole, it is regrettable that more teachers, practically concerned with these types of training in the Borough, did not avail themselves of the opportunity of coming to the classes, which were conducted as following up previously held courses. Among men teachers there is a good deal more specialisation than among women, so that their number is considerably

less, but the proportion of them enrolling is consistently good. On the other hand, in some cases attendance is spasmodic through evening school employment and other distractions, and it must be acknowledged that the spade-work of "following up" is less popular than the novelty of a first course. Much of the superficiality which characterises some of the training in schools may be accounted for by an unjustified self-satisfaction of having gained the spirit and atmosphere of the lessons on a first course without the reinforcement of that background by a more detailed and more technical study in subsequent courses. Further, whilst any teachers, who have attended no physical training course whatsoever, remain responsible for the training of their classes, the situation is not completely satisfactory, as their influence impedes progress through the school.

The policy of supplying apparatus in accordance with the facilities available for its use has been continued, and is justified by the increased activity and interest of the children who show a greater capacity for initiative and working in small groups than is possible when classes have to be taken as a whole for want of equipment. The use of apparatus by individuals and small groups produces practice and interest, and these produce self-discipline. Development of this within the Junior Schools will be more than ever essential to the success of the training in Senior Schools, for the success of apparatus gymnastics depends on team and group work to no little extent.

Improvement in personal equipment and in facilities has now reached a point when attention requires to be devoted to the questions of storage of garments and footwear, and to the drying of towels, particularly in Senior Schools. We understand that the Committee are now considering these important aspects of the work.

Games play an increasingly important part in the scheme of Physical Education, and as the standard improves interest becomes greater. During the winter months Senior girls have played Field Handball and Hockey, and, when conditions made field games impossible, Net Ball. Field Handball is very popular, and several inter-school matches have been arranged. A creditable feature of all the inter-school games and athletics, for both girls and boys, is the fact that the coaching of school teams is done out of school hours, and that the main interest of the teachers in field lessons is in the standard of play of the whole class. In the early weeks of the Winter Term games courses for Men and Women teachers were held, and training schemes were evolved for use with their classes in the field.

The demand for a game of higher skill for girls, which can be continued after leaving school, has led to the introduction of Cricket in some Senior Schools. It is hoped that in the near future facilities will be provided for girls to play tennis, so that rounders and stool-ball can be reserved for Juniors and those Seniors who desire to play them. Since the reorganisation of schools was completed it has been possible to arrange for the top classes in Junior Schools to have a field games lesson each week all the year. Field Handball has been adapted for them and results have been really pleasing.

REPORT
ON
DENTAL INSPECTION
AND
TREATMENT OF SCHOOL CHILDREN
FOR THE YEAR 1937

BY
W. BAIRD GRANDISON, L.D.S., R.C.S., Edin.
PUBLIC DENTAL OFFICER

THE DENTAL TREATMENT CENTRE,
AUCKLAND ROAD,
CAMBRIDGE.

December 31st, 1937.

To the Chairman and Members of the Education Committee.

LADIES AND GENTLEMEN,

I have the honour to submit the Thirtieth Annual Report on the working of the Dental Institute, covering a period from January 1st, 1937, to December 31st, 1937, inclusive.

Mr. R. B. Pickles left the service of the Council in December, 1936, and Miss M. E. C. Page, who succeeded him, took up her duties on January 1st, 1937. Her duties are concerned in the main with dental inspection and treatment in the Romsey Town district of the Borough, and although there are one or two administrative difficulties associated with dental work in schools, these are likely to pass shortly, as a result of the proposal to establish a new Health Centre in Romsey Town.

During the year 1938 it is hoped that a scheme may be introduced to render possible the dental inspection, with treatment if necessary, to the adolescent.

I record my thanks to my assistants and to the dental attendants for their active support and profound interest in the working of our scheme.

I am,

Ladies and Gentlemen,

Your obedient Servant,

W. BAIRD GRANDISON.

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Report on the Dental Inspection and Treatment of Elementary School Children

FOR THE YEAR 1937.

The Thirtieth Annual Report on the working of the school dental service of the Borough of Cambridge covers the period from January 1st, 1937, to December 31st, 1937, inclusive. The staff (all whole-time officers) comprises one senior dental officer and two assistant dental officers, together with three dental attendants. The number of sessions allocated to the administration of the school dental service and to the dental inspection and treatment of elementary school children was 1325. The number of elementary school children concerned was 6350, divided into three groups as follows :—

(1)	Children coming under routine dental inspection	...	...	...	...	(1)	6293
* (2)	Children who were inspected by the dentist and who had minor defects in temporary teeth, which in the opinion of the dentists did not require treatment	...	...	...	...	(2)	206
							<hr/> 6429
(3)	Casuals	...	...	...	...	(3)	151
							<hr/>
	Grand Total	...	...	...	...		6650

*Statistics relating to these children are not detailed in this report.

In the year under review 6293 children were submitted for routine inspection. Of this number 1670 were found to have sound dentitions, 4623 required treatment, and 4417 received complete treatment. In addition 151 children attended without appointments and received treatment, making a total of 6444 children inspected and 4568 treated. The total number of attendances made by 4568 children was 4890.

Number of Sessions devoted to :		Mr. W. B. Grandison.	Miss M. E. C. Page.
		Mr. C. Harris.	
(1)	Administration ...	26	0
(2)	Inspection ...	12	22
(3)	Routine Treatment ...	388	409
(4)	Orthodontic Treatment	0	0
(5)	Maternity and Child Welfare Dental Work	43	43
Total ...		469	474

The hours of work are from 9 a.m. to 12.30 p.m., and from 2 p.m. to 5 p.m., or until the work of each session is completed.

(1) Administration : Includes Sessions devoted to organisation, preparation of reports, attendances at various committee meetings, interviews, dental meetings, etc.

(2) Inspection : The dental inspection of routine cases is conducted at the schools. Sufficient time and care are taken by the aid of a probe and a mirror to examine the teeth of children which show no obvious defects to the naked eye. It is this fact, and this fact alone probably, which justifies the need of dental inspection at the schools in Cambridge. To prevent, in short, a possible waste of time at the treatment session. In the absence of such an inspection six children (the usual number for treatment at any one session) could present themselves for inspection and any necessary treatment, and, on occasions, all six children could be found to have sound teeth, thus leaving the dentist without the necessary number of patients for that particular session.

The accurate inspection and charting of the teeth of children with sound dentitions at the schools is therefore an advantage. The remainder, the majority of course, have the teeth inspected casually and the accurate inspection together with the necessary charting is left until the child presents for treatment in due course. Casual inspection of children obviously requiring treatment is a saving of educational time, and is possible because we have endeavoured to educate the children and their parents for years now that notification papers indicate that dental treatment is necessary without specifying the nature or the extent of such treatment.

(3) Routine Dental Treatment : The number of sessions devoted to the dental treatment of elementary school children was 1207. The senior dental officer remains at the central treatment centre throughout the year, one assistant dental officer remains at the central treatment centre for most of the year but visits certain schools to treat the teeth of children who attend schools too far distant from the central treatment centre. The third dental officer moves from school to school in areas too far distant from the central treatment centre and only attends the centre to assist in the dental inspection and treatment of expectant and nursing mothers and children of pre-school age.

(4) Orthodontic Treatment : Members of the Education Committee know from my previous reports that, although we have contributed in no small measure to the control of dental caries by a sound system of conservative dentistry, large numbers of the elementary school children present on inspection orthodontic problems the solution to which has not, except in a few cases, been attempted. One, of course, has sound reasons for such an error of omission which I suggest are justified by the continued absence of an X-ray apparatus to assist in correct diagnosis, and the absence of suitable assistance to manufacture appliances at the direction of the dental officer. Considerably more time is necessary to fit satisfactorily suitable orthodontic appliances than can possibly be conscientiously spared when the dental officer is responsible not only for the impression of the mouth and the fitting of the appliance, but also for the casting of the model and the manufacture of the appliance.

Already the request to install an X-ray apparatus and to obtain suitable assistance has met with the unanimous approval of the Committees concerned. In consequence one may in future anticipate an increasing activity in orthodontic work which will be popular with the patients and give additional benefit to many who will avail themselves of the necessary treatment.

Mr. C. Harris has devoted much time and thought to his orthodontic patients who this year numbered 39 and though considerably handicapped as indicated previously, he has made some noteworthy improvements in the mouths of certain children. The number of sessions devoted to orthodontic treatment in the year under review was 43.

(5) Maternity and Child Welfare Dental Work : 86 sessions have been spent on work under this heading, that is 43 sessions more than in the previous year. There can be no doubt that the various nursery classes in the Borough provide the best means whereby a systematic inspection, with treatments if necessary, can be conducted. It is true that we receive patients recommended by the medical officers and health visitors, but unless some following-up system can be adopted to encourage a return for inspection and treatment at regular intervals of three months, the children concerned cannot receive the maximum benefit.

CONDITION OF THE TEETH AT INSPECTION.

6293 elementary school children were inspected during the year 1937. Of this number 767 were new patients, that is, patients who had never been subjected to routine dental inspection before in Cambridge ; 512 children were sound previously, that is, patients who had been previously inspected, but the teeth were such that no treatment was necessary ; the remainder, 5014 children had been inspected and had received treatment in previous years.

The condition of the teeth of 6293 children, divided into their respective age groups, follows :—

Age.	Number of Children Examined	Number of Temporary Teeth			Number of Permanent Teeth		
		Sound	Decayed Saveable	Decayed Un-saveable	Sound	Decayed Saveable	Decayed Un-saveable
3 Years	89	1631	115	20	—	—	—
4 "	261	4278	727	125	10	—	—
5 "	588	8867	1708	513	487	136	—
6 "	706	9225	1573	780	2137	859	2
7 "	669	7045	822	686	4520	1031	11
8 "	664	5516	263	665	6752	955	20
9 "	629	3974	95	505	8164	688	33
10 "	636	2587	24	316	10175	773	43
11 "	682	1609	10	220	13146	861	85
12 "	547	723	4	104	11819	884	71
13 "	566	324	1	42	13091	1140	75
14 "	256	46	—	3	6335	380	44
Total ...	6293	45825	5342	3979	76636	7707	384*

* Includes 48 permanent teeth extracted for irregularity only.

For every 100 elementary school children in Cambridge therefore, there are 728 sound temporary teeth, 85 saveable temporary teeth, 63 unsaveable temporary teeth, 1218 sound permanent teeth, 122 saveable permanent teeth, and 6 unsaveable permanent teeth.

CONDITION OF THE TEETH AFTER TREATMENT.

4417 elementary school children received dental treatment (Routine) during the year 1937, and the effect of treatment can best be appreciated by arranging a comparative table, giving the results of dental inspection, together with the rearrangements which naturally follow as a result of treatment.

	No. of Children Examined.	Temporary Teeth.			Permanent Teeth.		
		Sound.	Decayed Saveable.	Decayed Un-saveable.	Sound.	Decayed Saveable.	Decayed Unsaveable
Condition of teeth at Inspection ...	6293	45825	5342	3979	76636	7707	384
Condition of teeth after Treatment ...	6293	51024	143	264	83828	515	32

One or two points arising from this report are sufficiently interesting to merit attention. 3062 children whose ages range between 5 and 14 years have between them 8091 decayed permanent teeth of which 7707 were saveable. 3062 children had approximately an average of $2\frac{1}{2}$ decayed saveable teeth each. The number of "Casuals" attending the dental treatment centre in the year 1937 was 151. This number is again considerably reduced, the number of "Casuals" in the year 1936 was 176. It is my endeavour, as far as possible, to limit the number of "casuals" as such to the smallest proportions. Children may, of course, seek advice regarding their teeth at any time and, if, on inspection the teeth are found to require treatment, complete treatment is an essential feature, acceptance of which naturally brings the child into the category of a routine case, and the rejection of such treatment (a most unusual occurrence) renders the child liable to seek advice elsewhere, because the policy followed at the dental treatment centre aims at the retention of the permanent teeth in a healthy condition, and certainly not the removal of a tooth or teeth which can be satisfactorily saved.

The number of children who could not be persuaded to accept complete treatment in the year 1937 was 206, being 4.4 per cent. of those requiring treatment or 3.1 per cent. of the total number inspected. Comments on such a percentage is surely unnecessary, but I feel I must express my very great appreciation of the capable and untiring assistance

given me by Teachers and dental attendants. All are most anxious to obtain a 100 per cent. acceptance, and in Senior Schools at least such an acceptance is, in these enlightened days, expected.

ROUTINE DENTAL WORK.

The nature and quantity of the work necessary to treat satisfactorily 4417 elementary school children was as follows :—

FILLINGS	{	A.	Amalgam or Synthetic	...	...	5860	(4128)
		B.	{	Amalgam (Lined) or				
				Synthetic (Lined)	2807	(3618)
		C.	{	Amalgam or Synthetic with Pulp				
				Preservation	154	(191)
			Amalgam or Synthetic with Root					
			Canal Treatment	...	...	5	(72)
			Total	...	...	8826	(8009)
			D.	Teeth treated with Nitrate of				
				Silver (Howe's Method)	...	5161	(4307)	
EXTRACTIONS	{	E.	{	Temporary Teeth	...	3715	(4459)	
				Permanent Teeth...	...	352	(582)	
						9228	(9348)	
			Total operations	...		18054	(17357)	

* Figures in brackets are the corresponding figures for the year 1936.

CASUALS.

In addition to the work recorded above, work was performed on certain children who visited the dental treatment centre without an appointment. 151 children come under this category, and the treatment was as follows :—

					*
FILLINGS	{	A.	In Permanent Teeth	... ..	58 (32)
		B.	In Temporary Teeth	... ..	5 (5)
EXTRACTIONS	{	C.	Of Permanent Teeth	... ..	48 (68)
		D.	Of Temporary Teeth	... ..	140 (205)
		E.	Teeth treated with Nitrate of Silver (Howe's Method)	... ..	20 (72)

* Figures in brackets are the corresponding figures for the year 1936.

Anaesthetics, local or general, are always used for the extraction of teeth and regional anaesthesia for filling.

From a study of the dental requirements of the elementary school child as tabulated in the summary of all examinations, together with the work done under "Routine dental work" one can appreciate the fact that, given an adequate staff prepared to inspect the teeth thoroughly, and rectify any defects with promptitude and skill, control of dental disease is possible. To quote one example, "The number of permanent teeth found unserviceable in the mouths of 6293 children was 384 of which 352 were removed." This is a remarkable figure indicating surely, that a sound system of conservative dentistry can preserve the teeth and render possible the objects of school dentistry, namely, "To permit children to leave school with the maximum number of permanent teeth present and in a healthy condition."

The dental inspection and treatment of the elementary school child undoubtedly is an innovation of the greatest importance calculated to assist the child to retain the teeth by rectifying within twelve months any defect which may be detected, but, "is this enough?" I submit that it is satisfactory to be in a position to cure a disease when established, but no one will suggest that the cure of the disease is in anyway comparable with the prevention of disease and, as far as dental caries is concerned, prevention is not practised, indeed prevention on anything like a reasonable scale has never been attempted.

The statement frequently repeated that the cause of dental caries has never been definitely ascertained may be the reason for failure to introduce schemes of prevention but any hesitancy to disclose the cause is due to the fact that many factors are involved, any one of which considered alone, would be insufficient to establish a case for the prevention of dental disease. Permit me to give expression to certain views I have as a result of a practical experience in the work of a school dental treatment centre for many years. In the first place I have no doubt whatever that school children are finding it increasingly difficult to accommodate the full complement of permanent teeth in anything like correct occlusion. This is obvious at inspection by the extent of the irregularity of the teeth present in a large number of the mouths of school children. It is no speculation to suggest that such an unfortunate position arises from the fact that the present method of feeding provides the minimum of mastication and the jaws, which should develop to an extent necessary to contain the teeth in correct occlusion, do not grow, purely from lack of sufficient exercise. To obviate this defect, food requiring a thorough mastication should be selected, and, as an example, I would lay particular stress on the advantages derived from eating an apple from the earliest possible age. If one must accept as inevitable inability to accommodate the teeth in correct occlusion the dentist is faced with a problem necessitating extraction of erupted permanent teeth in order to make room, as it were, for teeth which will erupt later. This practice is adopted with some success in certain parts of the country, and the procedure recommended is what is known as the reciprocal extraction of the first permanent molars. Teeth, that is to say, which make their appearance at six years of age, and which are removed when the child is approximately eleven years of age. This procedure sounds reasonable, but not only is it an easy way out of a difficulty, but it is a practice that is by no means always successful, furthermore it implies that the jaws can no longer be made to develop as heretofore.

Secondly. I suggest that it is becoming increasingly difficult year by year to find teeth the enamel of which is, or can be stated to be, free from what one might describe as physical defects. In short the enamel of teeth appears to lack lustre, is of poorer quality and in consequence subject to a more rapid attack by dental caries than formerly. An observation of this character tends to support those members of the professions who would regard dental caries as a deficiency disease in the first place at least. In this connection I would choose to draw attention to a very interesting experiment carried out at the School Clinic in Cambridge during the year 1937, and reported by Dr. Smyth in the current report of the School Medical Officer. Dr. L. J. Harris and Dr. M. K. Maitra found that of 70 Cambridge elementary school children examined 56 per cent. were deficient in Vitamin A (25 per cent. slightly below normal and 31 per cent. definitely sub-normal) whereas at a Boys' Public School in the same area 30 boys were examined and 10 per cent. were slightly below normal and none definitely sub-normal. These facts are significant because Vitamin A deficiency does not only cause the comparatively mild defect of being unable to see a dim light, but Vitamin A deficiency, it is stated, points to a possible diminished rate of growth, which is characteristic. I had occasion to examine the teeth of the majority of the elementary school children attending for this research and generally, but not in all cases, one found that the Teeth of Normal Children were in a better condition than those definitely sub-normal.

It has been established as a result of this research that a number of children attending our elementary schools are deficient in Vitamin A. Vitamins A and D are very similar, not only in their make-up, but also in their effect on the individual. In the report on "The Health of the School Child, 1936" special emphasis is given to the well-known research by Lady Mellanby into the effects of Vitamin D on the structure of teeth, and as a result of this research it has been established beyond doubt that Vitamin D administered during the developmental stage will improve the structure of the enamel and so, presumably, render the tooth less liable to attack from the acid-forming bacteria of the mouth. Again, in this research the administration of Vitamin D, even when teeth have erupted, retards the process of dental disease, a point which is not lacking in importance when it is realised that the interval between inspections extends to twelve months.

I submit, therefore, that whatever may constitute the meals of children attending the elementary schools there are important and far-reaching omissions which could be rectified to a considerable extent by additional supplies of milk and the essential vitamins.

Thirdly! "Clean teeth do not decay" is an adage which I am afraid is scorned by many clear-thinking people, and in consequence the value of the tooth-brush is in danger of losing its one-time importance. I must continue to encourage all school children to use the tooth-brush, especially after a starch meal, and before going to bed, and in this I hope to continue to enjoy the strongest possible support from the Teachers. Ample evidence prevails to establish the fact that clean teeth require the minimum of dental treatment and whether that is true or not, the habit of oral cleanliness is one which will never fail to attract those who can appreciate the effect, internal and external, of a clean mouth.

*Age.	Number of Children Examined.	No Decay including Both Dentitions.		Remarks.
		Number of Children.	Percentage.	
5 Years ...	588	92	16 approx.	Children with no decay present number 1561.
6 „ ...	706	65	9 „	
7 „ ...	669	71	10 „	
8 „ ...	664	127	19 „	
9 „ ...	629	176	28 „	The percentage 26.2% this year corresponds with 25.7% last year.
10 „ ...	636	202	31 „	
11 „ ...	682	300	44 „	
12 „ ...	547	209	38 „	
13 „ ...	566	201	35 „	
14 „ ...	256	118	46 „	
Total ...	5943	1561	26.2 „	

* Ages 3 and 4 are omitted.

*Age.	Number of Children with Permanent Teeth.	Number of Children whose Permanent Teeth were						Unsaveable but Untreated.
		Sound.		Made Artifici- ally Sound.		Saveable but Untreated.		
			%		%		%	
5 Years ...	151	81	54	63	42	7	5	—
6 „ ...	553	206	37	314	57	33	6	—
7 „ ...	649	201	31	421	65	27	4	—
8 „ ...	663	241	36	394	59	28	4	3
9 „ ...	629	294	47	296	47	37	6	7
10 „ ...	636	290	46	329	52	17	3	1
11 „ ...	682	360	53	305	45	17	2	2
12 „ ...	547	244	45	289	53	12	2	5
13 „ ...	566	221	39	322	57	23	4	2
14 „ ...	256	132	51	124	48	—	—	—
Total ...	5332	2270	42	2857	53	201	4	20

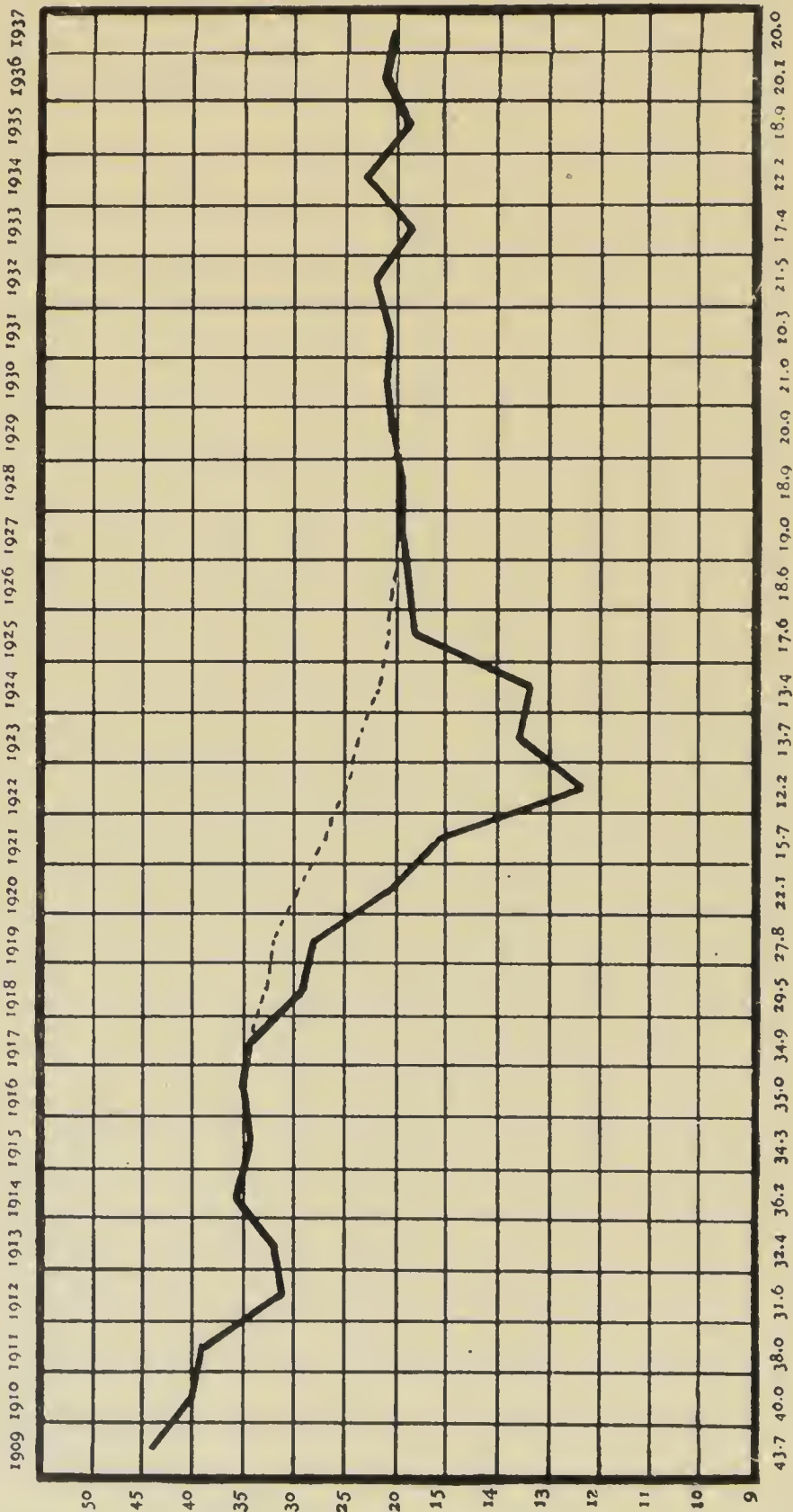
* Ages 3 and 4 are omitted.

The unsaveable permanent teeth which numbered 384 in the mouths of 6293 children at inspection were distributed thus :—

236	children	had	1	unsaveable	tooth	each.
53	„	„	2	„	teeth	„
6	„	„	3	„	„	„
6	„	„	4	„	„	„

Total 301 children had 384 unsaveable permanent teeth.

Diagram.—Showing the percentage of decay in the temporary teeth of the five year old group of children from 1909 to 1937 (inclusive).



The Dotted Line gives the assumed course dealing with dental disease in the 5 year old group of children in the absence of a War Period.

The percentage of decay present in the temporary teeth of the five year old group of children remains at 20 per cent. Thus we continue to record that at five years of age each child has an average of five decayed temporary teeth, and there is no evidence whatever to indicate an improvement. What the condition of the teeth of the five year old group of children would be in the absence of our scheme for the dental inspection and treatment of the pre-school child it would be difficult to contemplate. Good though that scheme is, supported by Doctors, Health Visitors, Voluntary Workers and teachers of Nursery Classes, it could and should be improved. The greatest draw-back to a successful scheme for the dental inspection and treatment of the pre-school child is to be found in the very real difficulty parents have to leave their homes, walk long distances often pushing a perambulator, wait on occasions some time, find that inspection reveals that no treatment is required, return home tired, but nevertheless compelled to carry out household duties, receive children from school, and so on. Failure to keep appointments if the teeth are free from pain is frequent, and I sympathise and express my appreciation of the difficulties which I myself have witnessed. These facts, I believe, are both recognised and accepted by the Medical Department, and sooner or later some attempt will be made to overcome these difficulties by those immediately concerned. Next year I hope to be able to present to the Committee a statistical research on the teeth of the five year old group of children similar to that drawn up for those leaving school, and I feel confident that the figures produced will necessitate further action, perhaps even some form of reorganisation. To retain the temporary teeth in a healthy condition until they are no longer required would undoubtedly reduce the percentage of caries in the permanent dentition.

GROUP IV.—DENTAL DEFECTS.

(1) Number of children who were :—

(a) Inspected by the Dentists :

		Aged.		
Routine Age Groups	{	3	...	89
		4	...	261
		5	...	588
		6	...	706
		7	...	669
		8	...	664
		9	...	629
		10	...	636
		11	...	682
		12	...	547
		13	...	566
		14	...	256
		Specials	...	...
				151
		Grand Total	...	6444

(b)	Found to require treatment	...	...	...	4774	
(c)	Actually treated	...	...	...	4569	
(d)	Re-treated during the year	...	...	...	—
(2)	Half-days devoted to :					
	Inspection	...	...	...	49	} 1325
	Treatment	...	...	...	1250	
	Administration	...	...	...	26	
(3)	Attendances made by children for treatment				...	4890
(4)	Fillings :					
	Permanent teeth	...	...	...	8611	} 8889
	Temporary teeth	...	...	...	278	
(5)	Extractions :					
	Permanent teeth	...	...	...	400	} 4255
	Temporary teeth	...	...	...	3855	
(6)	Administrations of general anaesthetics for extractions...	...	...	...	...	25
(7)	Other operations. (Ag No ₃ +F. Howe's Method) :					
	Permanent teeth	...	...	...	340	} 5181
	Temporary teeth	...	...	...	4841	

OTHER OPERATIONS.

Orthodontic cases	...	...	...	...	39
Crowns	...	...	...	...	11
Inlays	...	...	...	...	3
Dentures	...	...	...	...	5
Scalings	...	...	...	...	41